A REMARKABLE METEOR.

ON March 17 last, about 4.15 p.m., the track of a brilliant meteor in the southern heavens, at an altitude of 30°, was observed by Mr. R. Brough Smyth, of Sandhurst, Victoria, Australia. Writing to us on March 19, Mr. Smyth says:—

"The line was silver-white and of considerable breadth. The sun was shining in a clear sky. Owing to the view being intercepted by large gum-trees growing in the grounds around my house, I could see only a portion of the arc described. Subsequently, a little after 5 o'clock p.m., the sky was obscured by a kind of mist or vapour at a great height—in colour between steel-grey and lead-grey, and with tints similar to those of the metal bismuth over the whole. All objects looked green or greenish in the strange light. The meteor was observed at Salisbury in South Australia, at Coleraine in the extreme west of Victoria, and at various places eastward—say over a distance of 400 miles. It travelled apparently from east to west, and as far as known was visible in the southern part of Australia only. In some places it presented the appearance of a blood-red ball, and at Beaufort the ball is said to have exploded with a loud report, sending up a streak of fire, accompanied with the hissing of escaping steam, as from an engine. It left a cloud of greyish smoke. This smoke-like cloud was observed in other places. At Warrnambool on the west coast, and at Terang, twenty-five miles north-eastward, shocks of what were supposed to be earthquakes were felt at the time of the disappearance of the meteor. Cattle and horses galloped about in alarm, houses were shaken, windows rattled, and the wild fowl in the lakes were disturbed, and took wing. I inclose cuttings from the *Argus* containing accounts of this phenomenon."

The "cuttings" inclosed by Mr. Smyth are a series of telegrams, describing the phenomenon as seen in various parts of Australia. At Coleraine, "a brilliant ball of fire shot from the zenith in a clear sky to 30° above the horizon, and then disappeared as it exploded, leaving a large cloud of white smoke, which was visible for half an hour. Exactly six minutes subsequently, two distinct shocks like cannon reports were heard, with a perceptible tremor of the atmosphere. The phenomenon was witnessed by 500 persons." At Merino, "a most unusual phenomenon appeared in the eastern sky. A streak like smoke from a volcano appeared. Immediately after the appearance, a report like distant thunder was heard from the same direction. It was thought that an aërolite of immense size had fallen between Merino and Hamilton." At Stawell the "meteor appeared to burst just beyond the town in a cloud of smoke, which was immediately followed by a loud crash like thunder." From Terang it is reported that at Lake Keilambete "the black swans were noticed to rise suddenly off the lake. A rumbling noise appeared to pass under, causing the cattle grazing on the banks of the lake to scamper away, and on gaining some distance they were seen to look back. The noise was heard in other places, and seemed to pass to the south-west." At Portland, "three distinct reverberations like the booming of artillery were heard about 4 p.m." The people at Warrnambool, hearing, shortly after 4 o'clock, loud detonations like a volley of musketry, with subsequent dropping shots, rushed out of their houses; and "the cattle were paralyzed with fear at the sounds." The disappearance of the meteor over Beaufort, where it is said to have exploded, "was followed by earth tremors and a rumbling sound as of the firing of heavy artillery. The vibrations lasted for ten seconds. Several houses were shaken severely. No substance appears to have fallen to the earth."

SCIENTIFIC SERIALS.

THE contents of vol. lv. part 2, No. 4, of the *Journal of the Asiatic Society of Bengal*, are varied. They commence by a memoir on the land shells of Perak, by Dr. O. F. v. Möllendorff, in which 58 species (many new) are enumerated or described. Then follows an account of solar thermometric observations at Allahabad, by S. A. Hill, Meteorological Reporter to the Government of the North-West Provinces. The third memoir is an historico-geographical study on probable changes in the Punjab and its rivers, by R. D. Oldham, of the Indian Geological Survey, a paper on which much research has been expended, tending to prove that a second large river, independent of the Indus, once existed in the Punjab, and that the geological changes which converted a once fertile district into a desert probably date so recently as the early centuries of the Christian era. The next is a very important entomological investigation of the butterflies of Cachar, by Prof. Wood-Mason and Mr. L. De Nicéville, enumerating no less than 247 species obtained between the end of March and the beginning of October. A remarkable feature is the large number of *Hesperiidæ*, of which 53 distinct species were obtained. There are valuable notes on seasonal and local variation, and a considerable number of new species are described, and mostly figured on four plates, one of which is a chromo-lithograph executed in London, the others "autotype," and apparently very successful examples of what may be produced by the process as applied to natural history subjects. Dr. King follows with a short paper on some new species of *Ficus* from New Guinea, in which the author largely quotes from and anticipates a monograph on Indo-Malayan and Chinese figs prepared for the Linnean Society; the remarks are worthy of very careful study, and open up much new light on the somewhat obscure subject known as "caprification." The concluding paper is a very short one by Mr. J. S. Baly on a new species of *Hispa* destructive to the "dahn" crops in Chittagong. On the whole this part is one of the most valuable that have been issued by this long-established Society.

Proceedings of the Linnean Society of New South Wales, 2nd series, vol. i., part 4, February 22, 1887 (Sydney), contains:—*Zoology*; George Masters, catalogue of the described Coleoptera of Australia, part 6.—E. Meyrick, descriptions of new Lepidoptera. A large number of new species and several new genera are described; a new species of Thalpochares is given the name of Coccophaga, from the singular habits of the larva, which feeds solely on a Coccus infesting a Macrozamia.—E. P. Ramsay, notes on the eggs of various Australian birds; list of Western Australian birds collected at Derby; on the nest of *Pycnoptilus floccosus* (plate xx.); on a new species of Hapalotis (*H. boweri*) (plate xviii.).—E. P. Ramsay and J. Douglas-Ogilby, on a new species of Apogon (*A. roseigaster*).—William Macleay, on a new species of Hoplocephalus (*H. collaris*).—C. W. De Vis, on new or rare vertebrates from the Herbert River; describes a new Pseudochirus (*P. mongan*), a new Dromicia (*D. frontalis*), and records the occurrence of some rare species.—A. J. North, notes on the bower birds, and some references to authentic descriptions of Australian birds' eggs.—*Botany*: E. Haviland, flowering seasons of Australian plants.—J. Stirling, on the Rutaceæ of the Australian Alps.—Baron von Mueller, on some hitherto undescribed plants of New South Wales. *Grevillea renwickiana* is described as quite procumbent, with elongated branches, being in this respect like *G. laurifolia* and *G. repens*, but differing from both in the larger and much less numerous flowers; also new species of Melaleuca, Bossiæa, and Pultenæa.—*Palæontological:* F. Ratte, notes on Australian fossils.—W. J. Stephens, on some new Labyrinthodonts (plates xiv. and xxii.).—J. Mitchell, on the geology of Bowning, N.S.W.

Zeitschrift für wissenschaftliche Zoologie, vol. lv. Part 2, April 13, 1887, contains:—Dr. O. Schultze, researches on the ripening and the fertilization of the amphibian ova, part 1 (plates xi. to xiii.).—Dr. Wilhelm Roux, on a fungus living parasitically in bones (*Mycelites ossifragus*) (plate xiv.). The author gives an account of the filaments of this fungus occurring in the bones of a large number of extinct forms of mammals, reptiles, and fishes.—Dr. Otto Zacharias, contributions to the pelagic and littoral fauna of the German Ocean. In this paper are described a large number of Entomostraca, Rotatoria, Hydrachnida, and Turbellaria, some new. In an appendix, S. A. Poppe describes a new species of Temorella from Holstein and Mecklenburg (plate xv.).—Dr. H. Strahl, on the walls of the yolk-sac and on the parablast in lizards (plate xvi.).—Dr. Joseph Heinrich List, on the glandular structures in the foot of *Tethys fimbriata*, L. (plate xvii.). These glands are found both on the upper and under side of the feet, and are of four different sorts; while some are slime organs, others may be phosphorescent organs.—Dr. Eugen Korschelt, on some interesting phenomena in the formation of the eggs of insects (plates xviii., xix.).

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, April 28.—"On the Homologies and Succession of the Teeth in the Dasyuridæ, with an Attempt to trace the History of the Evolution of Mammalian Teeth in general." By Oldfield Thomas, British Museum (Natural History). Communicated by Dr. Albert Günther, F.R.S.

The true homologies of the different teeth in the Marsupialia, and especially in the *Dasyuridæ*, have long been in a state of confusion, a confusion that has been chiefly in regard to the premolars, of which some members of the family have two, others three, while generalized Placentals have four, and it is therefore necessary to prove which teeth have been successively lost in order to find out the correct homologies of the remainder.

Firstly, as to which of the three premolars of ordinary Marsupialia has been lost in *Dasyurus*, with only two, it is shown that it is the last premolar, or pm.^{4}, that is missing in this genus.

Next, it was necessary to find out which of the original four premolars had disappeared in the ordinary three-toothed genera of the Polyprotodonts, and this has been able to be done by the fortunate discovery of a specimen of *Phascologale* in which there are four premolars on one side, the additional tooth being inserted behind the first premolar. The missing premolar is therefore pm.^{2}, the resulting premolar formula of *Phascologale* and *Thylacinus* being P.M. $\frac{1 . 0 . 3 . 4}{1 . 0 . 3 . 4}$ and of *Dasyurus* P.M. $\frac{1 . 0 . 3 . 0}{1 . 0 . 3 . 0}$.

The milk dentition in several of the *Dasyuridæ* is then described, and also that of the Mesozoic *Triacanthodon serrula* (Owen), which is definitely proved to have a true Marsupial milk dentition.

An attempt is then made to trace out the history of the evolution of mammalian teeth in general, and it is suggested that the process by which a milk tooth was developed consisted of two stages, firstly, a preliminary retardation of the permanent tooth, and secondly, of the development of a temporary tooth in the gap in the tooth-row caused thereby; the retardation in the first case being useful for packing purposes in a large-toothed animal, while in a small-toothed form the same retardation, if present by inheritance, would cause a more or less disadvantageous gap, best filled by the assumption of a milk tooth.

Following out this idea, it is shown how easily the transition from the Metatherian to the Eutherian state of tooth-change may have taken place, a transition by the help of which a complete series of diagrams can be drawn up, following the history of each individual tooth, from the dentition of the earliest mammals, homodont and monophyodont, down to the varied forms of dentition, heterodont and diphyodont, existing at the present day.

For the Edentates alone it is necessary to draw up a special branch of tooth development arising directly from the Prototheria, a branch for which the name of "Paratherian" is proposed.

Physical Society, May 14.—Prof. W. E. Ayrton, Vice-President, in the chair.—Mr. T. Mather was elected a member of the Society.—The following papers were read:—On a modification of a method of Maxwell's for measuring the coefficient of self-induction, by Mr. E. C. Rimington. The method referred to is given in Maxwell's "Electricity and Magnetism," § 778, vol. ii., and is called "comparison of the electro-static capacity of a condenser with the electro-magnetic capacity of a coil." The apparatus used consists of a Wheatstone's bridge having the coil in one, and the condenser as a shunt to the opposite, arm. In order that no deflection may be produced, either for steady or unsteady currents, a troublesome double adjustment of the resistances is necessary, and to obviate this the modification was devised. It consists in placing the condenser as a shunt to only part of the arm, and this part can be varied by sliding contacts without altering the whole resistance of the arm. An ordinary resistance balance for steady currents is first obtained, and the sliders are then adjusted until no deflection is produced on breaking the battery circuit. Under these circumstances it is shown that $L = Kr^2\frac{D}{B}$, where K is the capacity of the condenser, r the resistance between the sliders, and D and B the resistances of the arms in which the coil and condenser are placed. The conditions of maximum sensibility are investigated, and also those under which a telephone may replace the galvanometer; in the latter it is shown that the only possible solution is when $r = B$, *i.e.* Maxwell's arrangement. The author believes his modification would be made much more sensitive by adopting the "cumulative" method used by Profs. Ayrton and Perry in their secohmmeter; and in his case neither the speed nor the "lead" need be known. Mr. W. N. Shaw asked whether any serious difficulties were experienced with telephones, owing to electro-static capacities of wires, &c., and Mr. W. E. Sumpner pointed out that the particular arrangement given in Maxwell is not always the most sensitive, as was shown in his remarks at the last meeting of the Society of Telegraph-Engineers. Mr. Bosanquet thought the method a valuable one, and hoped many experiments would be made on coils whose coefficients were calculable, in order to find out the differences between calculated and observed results. Prof. Ayrton referred to the paper by Prof. J. J. Thomson in the Philosophical Transactions, and pointed out that the formula there given for the capacity of a condenser in electro-magnetic measure, is identical with that given in Maxwell, § 776, when the printer's error of interchanging a and α in the denominator for R_2 is corrected.—On the production of sudden changes in the torsion of a wire by change of temperature, by Mr. R. H. M. Bosanquet. A very fine hard-drawn platinum wire, four or five feet long, was used as a suspension for a ballistic galvanometer, and exhibited peculiar phenomena. The steel needles were replaced by brass ones, and the peculiarities investigated. When the room was warmed, the needles swung round nearly 70° for a few degrees rise of temperature, and remained in about the same position for further rises. If it was now cooled a few degrees (3° or 4° F.), they quickly returned to their initial position. The author has not found a complete explanation, but believes it to be due to unequal expansion, and loose contact amongst molecules, and has devised a simple mechanism to illustrate his meaning. Remarks and suggestions were made by Prof. Perry, Mr. Lant Carpenter, and the Chairman.—On a magnetic potentiometer, by Mr. A. P. Chattock, read by Prof. Reinold. The "so-called" magnetic resistance between two points on a magnetic circuit may be expressed as the ratio of the difference of potential to the total induction passing from one to the other (provided there be no magnetomotive force between them). From the fact that the volume integral of induction through a wire helix of constant cross-section is proportional to the average difference of potential between its ends, it follows that any alteration in that difference of potential will give rise to an E.M.F. in the helix proportional to that alteration. Hence, if the wire be connected to a ballistic galvanometer, the combination may be called a magnetic potentiometer. A helix is formed by winding wire uniformly on a piece of solid india-rubber, or canvas gas-tubing, of constant cross-section, using an even number of layers to avoid external inductive effects, and leaving a small space between the turns so as to allow the tube to bend without elongating. Experiments made to measure the difference of potential between the ends of a magnet gave satisfactory results. One end of the helix was held stationary at one end of the magnet, whilst the other was moved quickly to the other end of the magnet, and the resulting throw of the galvanometer observed. This was next done at two operations, and the sum of the two throws was very nearly equal to the first. The results can be reduced to absolute measure by passing the helix through a coil of n turns, bringing its ends together, and starting or stopping a current, C, in the coil, the resulting throw of the galvanometer being noticed. The magnetomotive force used in this experiment is $4\pi n$C. An interesting discussion followed, in which Prof. Perry, Mr. Shaw, Prof. Ayrton, and Mr. Bosanquet took part, the latter mentioning a measurement of magnetic potential made by himself some years ago.—In consequence of the absence of Prof. S. P. Thompson, his paper on secondary generators was postponed till next meeting.

Geological Society, May 11.—Prof. J. W. Judd, F.R.S., President, in the chair.—The following communications were read:—Further observations on *Hyperodapedon gordoni*, by Prof. T. H. Huxley, F.R.S. The author briefly noticed the circumstances under which he first described the occurrence of Lacertilian and Crocodilian fossils in the Elgin sandstones, and the confirmation which his views as to the Mesozoic age of these remains had received from the discovery of *Hyperodapedon* in English Triassic rocks and in India. The original type of *Hyperodapedon gordoni* from Elgin was, however, in bad condition, and the receipt at the British Museum of a second much better preserved skeleton, found in the Lossiemouth quarries of the same neighbourhood, had enabled him to add considerably to the known characters of the genus, and to compare it more thoroughly both with the recent *Sphenodon* (or *Hatteria*) of New Zealand and with the Triassic *Rhynchosaurus articeps*, several specimens of which are in the British Museum palæontological collection. The recently discovered *Hyperodapedon* skeleton was of nearly the same size as that formerly described, and must have belonged to an individual about 6 or 7 feet in length. The specimen was exposed by the splitting of a large block of sandstone, and comprised the skull, the vertebral column as far as the root of the tail, all the bones of the left and of part of the right fore-limb, and those of the right hind-limb, the whole almost in their original relations. The bones were described in order and compared with those of *Sphenodon*, the most important differences in *Hyperodapedon* being the following:—(1) The centre of the presacral vertebræ are ossified throughout and more or less opisthocœlous, especially in the cervical region. (2) The anterior cervical vertebræ have long and strong ribs. (3) The external nares are not separated by bone. (4) Conjoined premaxillary bones form a long, conical, curved, pointed rostrum, which is received between the rostral processes of the mandible. All these were devoid of teeth and probably sheathed in horn. (5) The palatal area is very narrow in front and wide behind, with strongly curved lateral boundaries. (6) The posterior maxillary and palatal teeth are multiserial. (7) The rami of the mandible are united in a long symphysis, behind which they diverge widely, and the dentigerous edges are strongly concave upwards as well as outwards. (8) The mandibular teeth in front are set into a close, apparently continuous palisade, and become distinct and conical only at the posterior end of the series. (9) The fore-foot is remarkably short and stout, with metacarpals of equal length. The relations of *Rhynchosaurus* to *Hyperodapedon* and *Sphenodon* were then dealt with, the first-named being shown to occupy in some respects an intermediate place between the two others. The skull of *Rhynchosaurus* resembles that of *Hyperodapedon* in its single anterior nasal aperture, its premaxillary and mandibular rostral processes, and in having more than one series of palatal teeth; but in general form and in the shape of the maxillæ, palatal bones, and rami of the mandible it departs far less from *Sphenodon* than *Hyperodapedon* does. Some comparisons of the limb-bones were also made. The three genera mentioned were shown to form a particular group, which, however, had no claim to ordinal distinction, and appeared to form a family, Sphenodontidæ, of the Lacertilia, comprising two sub-families, Rhynchosaurinæ (including *Rhynchosaurus* and *Hyperodapedon*) and Sphenodontinæ. The fact that in this Lacertilian group the highest known degree of specialization, as shown in *Hyperodapedon*, was attained as early as the Triassic epoch, showed that in Permian times, or earlier, Lacertilia existed which differed less from *Sphenodon* than either of the Rhynchosaurinæ did. Not only was the Lacertilian type of organization clearly defined in the Triassic epoch, but it attained a degree of specialization equal to that exhibited by any modern lizard. The reading of this paper was followed by a discussion, in which the President, Dr. Geikie, Prof. Seeley, Mr. Lydekker, Prof. Boyd Dawkins, and others took part.—On the rocks of the Essex drift, by Rev. A. W. Rowe.—On Tertiary Cyclostomatous Bryozoa from New Zealand, by Mr. Arthur W. Waters.

EDINBURGH.

Royal Society, April 18.—Sir W. Thomson, President, in the chair.—Prof. Rowland's photographs of the solar spectrum were exhibited.—The President read a paper on ship-waves, and another on the instability of fluid motion. Both papers appear in the *Phil. Mag.*—Mr. D. S. Sinclair gave a communication on an experimental research in magnetism.—A paper by Mr. A. H. Anglin on the summation of certain series of alternants was submitted.—Prof. Crum Brown read a paper by Mr. H. Marshall on cobaltic alums.—Mr. G. N. Stewart submitted a synopsis of researches on the effect produced on the polarization of nerve by stimulation.

May 2.—Sir Douglas Maclagan, Vice-President, in the chair.—Prof. J. B. Haycraft read the third part (on the sense of smell) of a paper on the objective cause of sensation.—Prof. Crum Brown read a paper on the physics of noise. His object is to investigate the various components which make up ordinary noises, such as a hissing sound.—Prof. Dittmar and Mr. C. A. Fawsitt communicated a paper on the physical properties of methyl alcohol.—Prof. Dittmar also discussed the instability of the double salts of $M''SO_4.R'_2SO_4 + 6H_2O$ of the magnesium series.—Mr. J. Rattray described a diatomaceous deposit found at North Tolsta, Lewis.

PARIS.

Academy of Sciences, May 16.—M. Janssen in the chair.—Obituary notices of the late M. Boussingault, member of the Section for Rural Economy, who died on May 11, by MM. Schlœsing, Troost, and the President.—On some deviations from the normal direction of sound calculated to render ineffective the fog-signals and similar appliances employed in navigation, by M. H. Fizeau. The paper, written with reference to some recent shipping disasters during foul weather, shows on theoretical grounds that, the surface of the sea being at times warmer than the surrounding atmosphere, the aërial strata must in calm weather decrease in temperature upwards to a certain height above sea-level. This occurs not only at night, but also frequently during the day in foggy weather. Hence the sounds of the fog-signals, intended to be propagated horizontally, are necessarily affected by the differences of atmospheric temperature, those nearest the surface of the water acquiring greater velocity than those traversing the higher strata. Thus is at times produced a sort of "sound mirage," perfectly analogous to the well-known corresponding phenomena of light. Once the cause of the deviations is understood, the means of counteracting them will easily suggest themselves.—Effects of earthquakes on magnetic instruments, by M. Mascart. The reports of magnetic disturbances received from various stations in France, England, Germany, Russia, and other European countries, show great discrepancies as to the time and intensity of the shocks; but whether these discrepancies are to be attributed to possible errors of observation, to the difference in the character of the instruments, or to physical causes, cannot at present be determined. If the cause of the disturbances is really electric, its very mechanism is absolutely unknown.—Observations of Barnard's new comet, *e* 1887, made at the Paris Observatory (equatorial of the West Tower), by M. G. Bigourdan. This comet, discovered on May 12, at Cambridge, in the United States, was seen at Paris on May 14, when it presented the appearance of a round nebulosity of 1′ diameter, and of the thirteenth magnitude, with considerable central condensation, notwithstanding its slight altitude above the horizon.—On the direct determination of the differential coefficient $\frac{dp}{dt}$, relative to saturated vapours, by M. A. Perot. It is shown that the mechanical equivalent of heat may be determined by the well-known relation—

$$L = \frac{1}{E} T (u' - u) \frac{dp}{dt},$$

which is obtained by applying to a liquid mixture and its vapour the principle of equivalence, and that of Carnot. In order to approximately determine this quantity, the author has undertaken to measure on the same sample of pure ether, at a temperature of 30°, the different parameters entering into the preceding relation—u', u, L, and $\frac{dp}{dt}$. To determine $\frac{dp}{dt}$ he employs a special method, which enables him to measure separately the two corresponding quantities dp and dt. The determinations have been made for the temperatures 29° to 31° inclusive, within which interval they may be represented by the formula—

$$\frac{dp}{dt} = 2{\cdot}2750 + (t - 29)\,0{\cdot}0834.$$

—Intertropical diurnal and annual variations of terrestrial magnetism (second note), by M. Ch. Lagrange. By comparing the observations recorded at two stations on either side of and equidistant from the equator, such as Bombay and St. Helena, Hobartown and Toronto, the author finds that there exists in the atmosphere and in the earth a system of currents moving east and west, whose strata of greatest intensity penetrate the atmosphere, descending in the hot season below the surface of the earth and again rising in the cold season. This system seems to prove the reality of Ampère's general system of currents extended to the earth and the atmosphere. From this it also follows that the existence of these aërial magnetic currents involves a diminution of temperature with elevation. Consequently these currents are one of the factors, possibly the chief factor, in the thermic system of the globe, so that a fundamental connexion exists between meteorological phenomena and those of terrestrial magnetism.—On the reproduction of alabandine, by M. H. Baubigny. By the process here described the author has obtained some beautiful octahedric crystals, presenting all the characteristics of alabandine (MnS): the same crystalline form, colour, and density, about 4.—Contribution to the study of the alkaloids, by M. Oechsner de Coninck. Having in a previous paper described the reaction of potassa on a combination of the iodide of ethyl with nicotine, the author here confirms by a fresh line of observation the relation of nicotine to the pyridic and dipyridic series.—On some fossil woods found in the Quaternary formations of the Paris basin, by M. Emile Rivière. These specimens were found associated with the animal remains already frequently described by the author. A microscopic study has enabled him to determine three different vegetable species: Palm, Cedroxylon, and Taxodium. The last-mentioned was especially abundant in the Miocene epoch, and appears to be older than the non-fossilized specimens from time to time discovered in the boggy districts of Switzerland.

Berlin.

Physical Society, April 22.—Prof. Du Bois-Reymond, President, in the chair.—Dr. Gross explained his theoretical views on the heat of solution of magnetised iron, and showed why, in accordance with these, the heat of solution of magnetised iron must be greater than that of unmagnetised. One result of these views was that a piece of magnetised and unmagnetised iron in a conducting fluid capable of dissolving the iron must give a current; this he has already demonstrated two years ago (see Nature, vol. xxxi. p. 596). The current in such an element as this flows across the fluid from the magnetised to the unmagnetised pole, and is independent of the nature of the magnetisation. The source of the electric current is in this case, according to the views of the speaker, to be sought for in the loss of specific magnetisation which the molecules of iron undergo as they pass from the solid to the fluid condition. Of the various solutions of salts of iron which were used in these experiments, only neutral salts of ferric oxide were found to yield a result, while the salts of ferrous oxide gave no current. The cause of this is, according to the speaker, that only the ferric salts lead to a solution of the magnets. Dr. Nichols has quite recently carried on some experiments on the heat of solution of magnetised iron, and has obtained the same experimental results, namely that the heat of solution of magnetised iron is greater than that of unmagnetised, although he starts with theoretical views respecting the magnetic potential of solid iron and iron in solution which are diametrically opposed to those of Dr. Gross.—The President exhibited a Bourdon's manometer, and explained its use for the measurement of alterations of blood-pressure in living animals. In connexion with this the President gave a full account of the physical portions of the research which Dr. Grunmach has carried out on the influence of elasticity on the rate of progression of the pulse-wave. The most important points of this research have already been communicated in the report of the last meeting of the Physiological Society on April 15 (Nature, May 12, p. 48).

Physiological Society, April 29.—Prof. Du Bois-Reymond, President, in the chair.—Dr. Onodi, of Buda-Pesth, gave an account of the anatomical investigations which he carried on during his two visits to the Zoological Station at Naples. In the first place he busied himself with the anatomy of the ciliary ganglion, which he examined microscopically in twenty-five different species of Selachians. From what he found in these lower vertebrates, as well as from observations which he had an opportunity of making on the embryos of cartilaginous fishes and chicks, he has come to the conclusion that the ciliary ganglion must be reckoned in with the sympathetic plexus. In addition to the above researches Dr. Onodi was occupied with investigations on the roots of the vagus, and he communicated a number of interesting details on their relations in the Selachians.—Dr. König spoke on Newton's law of colour-mixing, explaining its principle, and illustrating it with the aid of a Newton's colour-chart. He then developed the three propositions which Grassmann has deduced from the Newtonian law, and which, as is well known, are as follows: (1) when two spectral colours are mixed the resulting compound colour is a spectral colour lying between the other two, but mixed with white; (2) when one of the two colours which is being mixed is continuously changing, then the resulting compound colour also changes continuously; (3) similar colours when mixed give similar compound colours. Of these three propositions the first has not been confirmed by later experimental researches, but this does not diminish the value of Newton's law of the mixing of colours: it only becomes necessary to substitute a triangular colour-chart for the circular one put forward by Newton. The second proposition was fully confirmed by experience. The third proposition, which may also be expressed by saying that the compound colour is independent of the intensity of its separate constituents, was not confirmed by experiments. The speaker has alone, and in conjunction with Herr Breduhn, carried out careful measurements on trichromatic and dichromatic eyes, and has always observed a difference in the compound colour as the result of marked differences in intensity of the compounded colours. The validity of Newton's principle in its general form is therefore considerably shaken by this discovery, and must be confined to narrow limits of variations of intensity.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

The Agricultural Pests of India: Surgeon-General E. Balfour (Quaritch).—Schriften der Naturforschenden Gesellschaft in Danzig (Danzig).—The Storage of Electrical Energy: G. Planté (Whittaker).—Manual of Bacteriology: E. M. Crookshank (Lewis).—Chance and Luck: R. A. Proctor (Longmans)—Manual of Scientific Inquiry, 5th edition: edited by Sir R. S. Ball (Eyre and Spottiswoode).—Elementary Trigonometry: Rev. T. Roach (Clarendon Press, Oxford).—Our Bird Allies: T. Wood (S.P.C.K.).—Dandelion Clocks: J. H. Ewing (S.P.C.K.).—Agriculture in some of its Relations with Chemistry, 2 vols.: F. H. Storer (Low).—The Fungus-Hunter's Guide: W. D. Hay (Sonnenschein).—Forestry of West Africa: A. Moloney (Low).—Shores and Alps of Alaska: H. W. Skarr (Low).—The Races of the British Isles (Quaritch).—Rousdon Observatory, vol. iii., Meteorological Observations for the Year 1886: C. E. Peek.—Transactions of the Seismological Society, vol. x. (Yokohama).—New Commercial Plants and Drugs, No. 10: T. Christy.—Quarterly Journal of the Geological Society, vol. xliii., part 2, No. 170 (Longmans).—Bulletin of the American Geographical Society, 1886, No. 3 (New York).

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